

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-5 (Cancelled)

Claim 6 (Previously Presented): A probe array used in a manufacturing process of a probe card, comprising:

a second film-shaped supporting body; and  
a plurality of probes adhered onto one surface of the second film-shaped supporting body, each probe including: a beam and a contactor having a substantially trapezoidal shape, wherein the beam has a leading end, an intermediate portion and base end, the leading end being a portion for making a contact with the test subject via the contactor, the base end being a portion for fixing the probe; and the contactor is installed to the leading end of the beam.

Claim 7 (Original): The probe array of claim 6, wherein at least portions of said one surface of the second film-shaped supporting body where the probes are attached have an adhesive property, and an adhesive strength thereof can be varied by heat or ultraviolet light.

Claim 8 (Previously Presented): The probe array of claim 6, wherein a surface of each beam of the plurality of probes, a corresponding contactor being installed at the surface, is adhered to the surface of the second film-shaped supporting body having an adhesive property.

Claim 9 (Original): The probe array of claim 6, wherein the plurality of probes are arranged in various directions on a film.

Claim 10 (Withdrawn): A method for manufacturing the probe array recited in claim 6, comprising the steps of:

[a] forming the plurality of probes on the silicon substrate by using a lithography technology, including the steps of:

(a1) forming on a silicon substrate a plurality of recessed portions (frames), each having a substantially trapezoidal shape, by using an anisotropic etching technique, wherein an area of a top surface of the trapezoidal shape is controlled by adjusting an etching time; and

(a2) forming a plurality of probes, each being recited in claim, by using a film forming technique on the silicon substrate, wherein a contactor of each probe is formed inside each recessed portion having the trapezoidal shape and at the same time the beam is formed on the silicon substrate together with the contactor as a single body,

wherein the probe includes a beam and a contactor having a substantially trapezoidal shape, the beam having a leading end, an intermediate portion and base end, the leading end being a portion for contacting with the test subject via the contactor, the base end being a portion for fixing the probe; and the contactor is installed to the leading end of the beam;

[b] transferring the plurality of probes formed on the silicon substrate onto one surface of a first film-shaped supporting body simultaneously;

[c] deteriorating an adhesive property of said one surface of the first film-shaped supporting body; and

[d] transferring the plurality of probes onto said one surface of the second film-shaped supporting body by adhering the latter onto said one surface of the first film-shaped supporting body.

Claim 11 (Withdrawn): The method of claim 10, wherein said one surface of the first film-shaped supporting body has the adhesive property and an adhesive strength thereof can be varied by heat or ultraviolet light.

Claim 12 (Withdrawn): The method of claim 10, wherein the step [a] includes the steps of:

[a'] forming a peeling layer on the silicon substrate prior to forming the plurality of probes on the silicon substrate by the method of step [a]; and

[b'] eliminating parts of the peeling layer prior to transferring the plurality of probes formed on the silicon substrate onto said one surface of the first film-shaped supporting body simultaneously.

Claim 13 (Withdrawn): A method for attaching a base end of a probe to a supporting column placed on a card shaped substrate, comprising the steps of:

installing the base end of the probe having the trapezoidal contactor of claim 6 and accommodated in the probe array of claim 6 on an attaching surface of the supporting column on the card shaped substrate; and

fixing the base end of the probe to the supporting column.

Claim 14 (Withdrawn): The method of claim 13, wherein the step of fixing the base end of the probe to the supporting column is performed by pressing a leading end of an ultrasonic bonder against an upper side of the base end of the probe,

wherein the leading end of the ultrasonic bonder has a crossed protrusion, a cross section of the protrusion being of a substantially semicircle, and the beam of the probe is bent toward the contactor by fixing the base end of the probe to the supporting column by using the ultrasonic bonder.

Claims 15-25 (Cancelled).

Claim 26 (New): A probe contacting with an electrode of a test subject formed on a substrate and used for inspecting electrical characteristics of the test subject, the probe comprising:

a beam having a leading end, an intermediate portion and base end, the leading end being a portion for making a contact with the test subject via a contactor, the base end being a portion for fixing the probe; and

a contactor having a substantially trapezoidal shape and installed to the leading end of the beam.

Claim 27 (New): The probe of claim 26, wherein the trapezoidal shape of the contactor is a substantially square coned trapezoidal shape.

Claim 28 (New): The probe of claim 26, wherein the beam is bent toward the contactor at the base end or the intermediate portion.

Claim 29 (New): An apparatus for attaching a base end of a probe having a trapezoidal contactor to a supporting column of card shaped substrate, comprising:

a unit for installing the base end of the probe provided in a probe array of claim 6 to an upper portion of the supporting column of a substrate;

a unit for fixing the base end of the probe to the supporting column.

Claim 30 (New): The attaching apparatus of claim 29, wherein the unit for fixing is an ultrasonic bonder having a leading end equipped with a protrusion.

Claim 31 (New): The attaching apparatus of claim 30, wherein the protrusion at the leading end of the ultrasonic bonder substantially has a formation that semi-cylinder shaped protrusions are crossing each other.

Claim 32 (New): A probe card having a plurality of probes, comprising:

a probe card main body including a first surface and a second surface, wherein a plurality of first terminals are installed on the first surface thereof, a plurality of second terminals are installed on the second surface thereof, wherein each of the second terminals is connected to a different one of supporting columns electrically and the first terminal is the supporting column; and

a plurality of probes having substantially trapezoidal contactor of claim 26, wherein the base end of each of probes is fixed to a different one of supporting columns.

Claim 33 (New): The probe card of claim 32, wherein the contactor of each probe substantially has a form of a square coned trapezoid.

Claim 34 (New): The probe card of claim 32, wherein the probe is bent toward the contactor at a place between a base end and an intermediate portion thereof.

Claim 35 (New): The probe card of claim 32, wherein the probe card main body further includes a stopper.

Claim 36 (New): The probe card of claim 35, wherein the stopper is made of a same material as the supporting column and has an electric insulating film on a peripheral surface thereof including a contact surface with a surface of a test subject.

Claim 37 (New): The probe card of claim 32, wherein the probe card main body includes a plurality of alignment marks on the first surface thereof.

Claim 38 (New): A probe array supporting unit for supporting the probe array of claim 6 with a predetermined tension, comprising:

a first fixing part, which is a first frame shaped structure;

a second fixing part, wherein the second fixing part is a second frame shaped structure and overlapped with the first fixing part via the probe array of claim 6,

wherein while the second fixing part is overlapped with the first fixing part, the probe array is supported by both fixing parts under a predetermined tension; and

a locking part for locking and fixing the overlapped first and second fixing parts.

Claim 39 (New): A probe array supporting unit of claim 38, wherein

the first fixing part is a first frame shaped structure having a first lower surface and a first upper surface and the first upper surface is a first slant surface declining from an outer circumference to an inner circumference of the first frame shaped structure; and

the second fixing part is piled on the first fixing part and is a second frame shaped structure having a second lower surface and a second upper surface, and the second lower surface is a second slant surface declining from an outer circumference to an inner circumference of the second frame shaped structure and substantially having a same slant angle as that of the first slant surface.